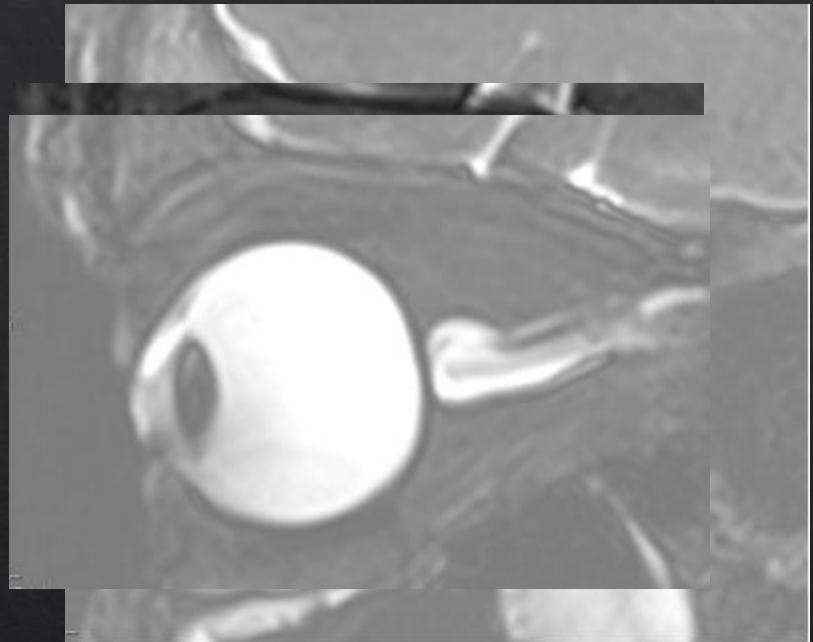


# Microgravity Ocular Syndrome (MOS) Clinical Update 2017



# A Clear “VIIP” Case

- ❖ Male, mid 40's at the time of flight
- ❖ No significant PMH/PSH/PFH
- ❖ No medications
- ❖ Normal BP (118/64)
- ❖ Normal lipids
- ❖ ECG Stress test
  - ❖ normal with VO<sub>2</sub> max of 51ml/kg

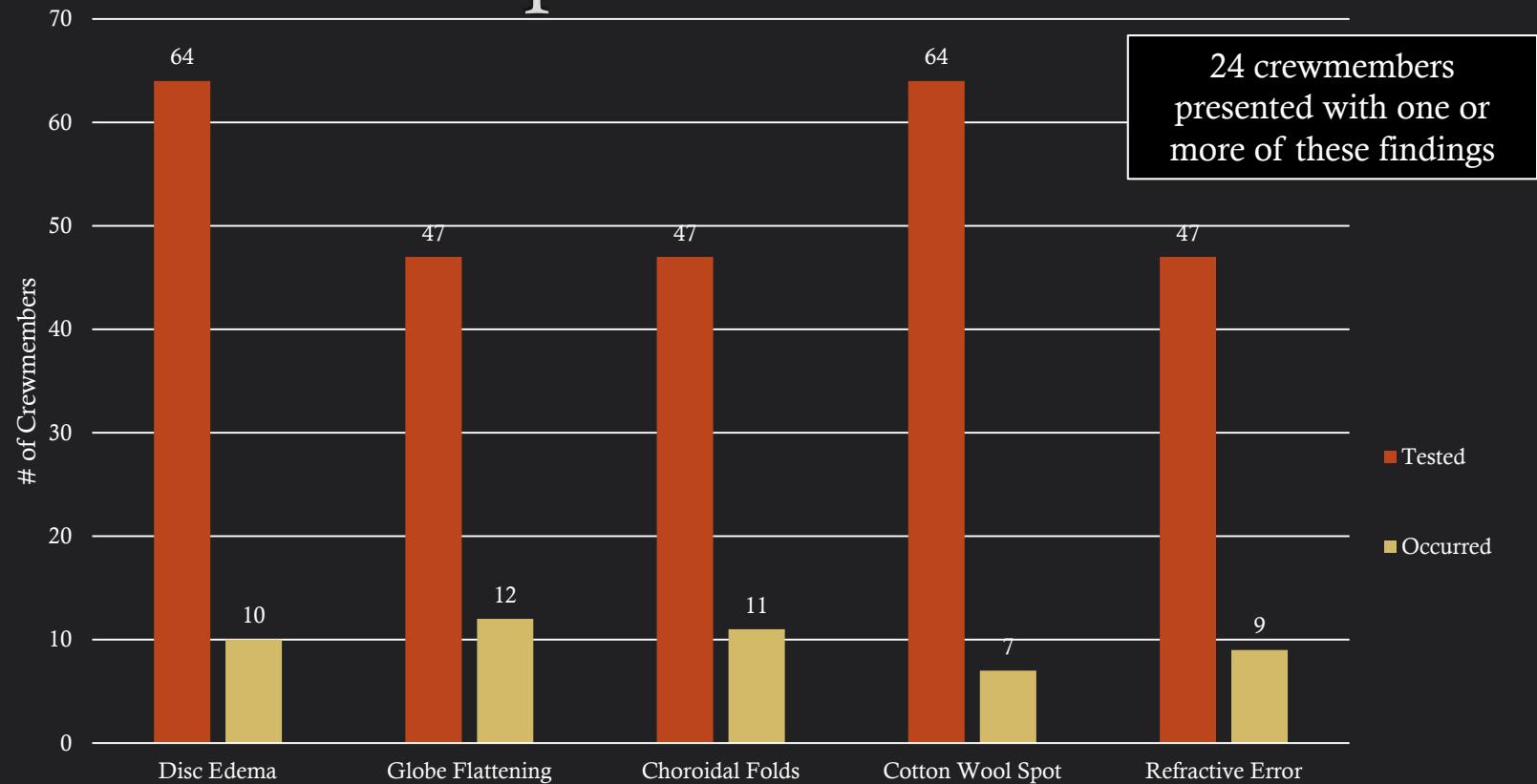


MRI prior to flight  
MRI 6 days after  
landing

MRI 1 yr post  
flight

# USOS Individuals with MOS Findings

## Expedition 1-48

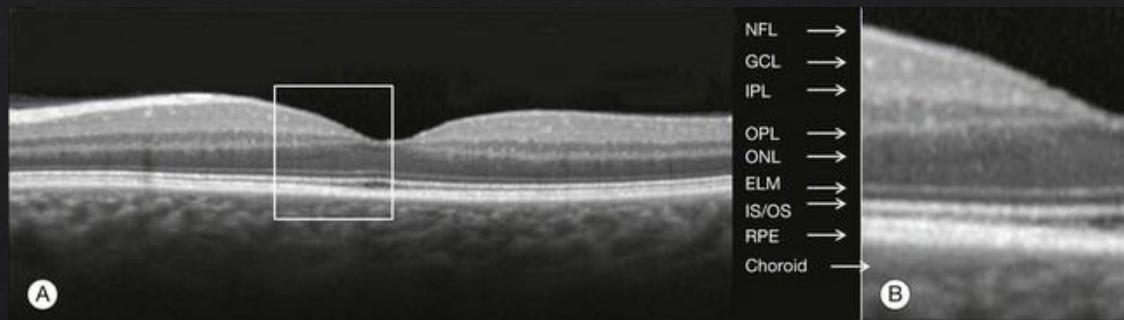


- ❖ Disc Edema = Modified Frisen Scale Grade 1 or greater at first post-flight eye exam (Fundoscopy)
- ❖ Globe Flattening = A change compared to preflight (MRI or U/S)
- ❖ Choroidal Folds = New or worsened compared to preflight (OCT)
- ❖ Cotton Wool Spot = Presence In-flight or Post-flight (Fundoscopy)
- ❖ Refractive Error = Change in Cycloplegic (Spherical) Refraction  $\geq 0.75\text{D}$  from preflight to first post-flight eye exam.

# Clinical Update 2017

## Ongoing clinical work

- Correlation between ocular structural changes (OCT) and chronic effect on visual function (visual fields testing)
- Correlation of subcortical white matter hyperintensities (WMH) found on MRI and MOS signs – 2017
- Refinement of cardiovascular parameters and their correlation with VIIP signs – 2017
- We are evaluating the next generation OCT, “OCT2” to determine if it will enhance on orbit imaging/data acquisition
- Resolve OCT alignment issue



# What We Are Watching Coming From Our Research Colleagues

- Ocular Health Study and the Fluid Shifts Study – both finish data collection this summer
- Clinical relevance of MRI-based findings
- Implementation of direct ICP measures study pre and post mission
- Correlation between HDT with CO<sub>2</sub> and VIIP (EnviHab)

